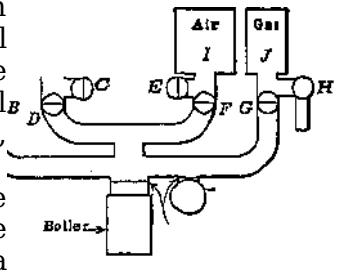
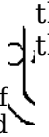
LEAKAGE THROUGH VALVES AND DAMPERS

Leaky valves and dampers are another source of trouble when -waste-heat boilers are installed. The simple butterfly valve is the oldest form of reversing valve. When carefully made and new these valves are tight, but they do not remain in that condition very long when exposed to hot gases. In modern practice the butterfly valve is rarely used, except for reversing the air, the gas being reversed by valves better designed for the prevention of leakage.

Gas	Air
K	*L*

There are a number of valves on the market which have proved more or less successful in operation. Many of these valves have water seals, which prevent leakage as long as the water supply is maintained and the pressure differential between the flues or the flue and the air is less than the seal. All water-seal valves lose their seal during the reversal period, and while this period, when the sealing lip is lifted above the water surface, may be only a fraction of a minute, a certain amount of loss occurs which cannot be prevented. All water-seal valves add perceptibly to the moisture in the hot gases which pass through thorn.





Fi<«. 156.—An Arrangement of Flues and Valves Used in the United

Fig. 150 shows an arrangement of valves and flues which has boon used in the United States. It is rather costly, involving the installation and upkeep of eight valves and two dampers. A method of reversal

which experience has shown to be satisfactory-with this valve system is as follows: assuming that the air and gas are entering the furnace through the checkers *K* and *L* and passing out through the checkers / and .7, the sequence of operation is:

1. Steam is cut off from the producers;
2. Air-stack valve *F* is closed;
3. Gas-inlet valve *A* is closed;
4. Air-inlet valve C^{y} Is closed;